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I HEREBY CERTIFY that annexed hereto is a true copy of documents filed in connection with the following patent application:

Application No. S970810

Date of filing 14 November 1997

Applicant GAYA LIMITED, a company organised and existing under the laws of the Republic of Ireland of 43 Fitzwilliam Place, Dublin 2, Ireland.

PRIORITY DOCUMENT

SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH RULE 17 1(a) OR (b)

Dated this 27th day of January 1999


An officer authorised by the
Controller of Patents, Designs and Trademarks.

S 9 7 0 8 1 0

FORM NO. I

Request for the Grant of a Patent

PATENTS ACT, 1992

The Applicant(s) named herein hereby request(s)

the grant of a patent under Part II of the Act
 the grant of a short-term patent under Part III of the Act

on the basis of the information furnished hereunder

1. **Applicant(s)**

Name GAYA LIMITED

Address 43 Fitzwilliam Place, Dublin 2, Ireland

Description/Nationality a company organised and existing under the laws of the Republic of Ireland

2. **Title of Invention**

SURGICAL HAND ACCESS DEVICE

3. **Declaration of Priority on basis of previously filed application(s) for same invention (Sections 25 & 26)**

Previous Filing Date

Country in or for which Filed

Filing No.

4. **Identification of Inventor(s)**

Name(s) of person(s) believed by Applicant(s) to be the Inventor(s)

Address

5 Statement of right to be granted a patent (Section 17(2)(b))

6 Items accompanying this Request - tick as appropriate

- (i) prescribed filing fee (£50.00)
- (ii) specification containing a description and claims
 specification containing a description only
 drawings referred to in description or claims
- (iii) an abstract
- (iv) copy of previous application(s) whose priority is claimed
- (v) translation of previous application whose priority is claimed
- (vi) Authorisation of Agent (this may be given at 3 if this Request is signed by the Applicant(s))

7 Divisional Application(s)

The following information is applicable to the present application which is made under Section 24:-

Earlier Application No. Filing Date

8 Agent

The following is authorised to act as agent in all proceedings connection with the obtaining of a patent to which this request relates and in relation to any patent granted:-

MACLACHLAN & DONALDSON, 47 Merrion Square, Dublin 2

9 Address for Service (if different to that at 8)

MACLACHLAN & DONALDSON, at their address as recorded for the time being in the Register of Patent Agents (Rule 92)

Signed Name(s) GAXA LIMITED

By

Doris M. Getty
MACLACHLAN & DONALDSON, Applicants' Agents

Date 14th November 1997

TRUE COPY
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1 APPLICATION NO.

5970810

SURGICAL HAND ACCESS DEVICE

The present invention relates to a surgical hand access device, in particular to improvements to a surgical hand access device as disclosed in our published International

5 Patent Application WO-A-9522289

The invention will hereinafter be more particularly described with reference to the accompany drawings which show by way of example only, a number of embodiments according to the invention. In the drawings

10

Figure 1 is a side view of a first embodiment of surgical hand access device according to that invention;

15

Figure 2 is a side view of a second embodiment of surgical hand access device according to the invention, having a longer inner sleeve than the first embodiment;

Figures 3 and 4 are side views respectively of third and fourth embodiments of a surgical hand access device;

20

Figures 5 and 6 are side views respectively of fifth and sixth embodiments of a hand access device;

Figure 7 is a side view of a seventh embodiment of a hand access device and Figure 7a is a side view of a modification of the seventh embodiment;

25

Figures 8 and 9 are side views respectively of an eighth and ninth embodiment of a hand access device;

30

Figure 10 is a side view of a tenth embodiment of a hand access device according to the invention and Figure 10a is a side view of an outer sleeve.

Figure 11 and 11a are a side view respectively of an eleventh embodiment of hand access device according to the invention and the outer sleeve;

5 Figure 12 is a perspective view of the eleventh embodiment in position on a patient's abdominal wall;

Figure 13 is a perspective view of one end of a cuff valve which can be used in all the above embodiments;

10 Figure 14 is a perspective view of a hinge and Figure 14a is a perspective view of the hinge applied to the cuff;

15 Figure 15 is a perspective view of an alternative hinge and Figure 15a is a perspective view of the alternative hinge applied to the cuff.

Referring to the drawings, and initially to Figure 1 the hand access device 10 comprises an outer sleeve 11 and an inner sleeve 12, a flange 13, an insufflation valve 14. It is operated in the same manner as our earlier device as described in the above mentioned PCT application. The device 10 however is fitted with an internal ring 15 which is attached with an apron 16 to the inner sleeve 12 adjacent to the flange 13 approximately 10 mm below a feather valve 17. The device has no side welds or no cross welds. A cuff valve 18 is positioned approximately 10 mm from the bottom of the ring 15 and comprises two strips of 1 mm Vivak 15 mm wide enclosed in a Saranex pocket at the distal end of the inner sleeve 12.

25 The second embodiment 20 is generally similar to the first embodiment 10 except that the inner sleeve 22 is longer so as to better accommodate the distance from the fingertips to the forearm to allow a seal around the forearm before breaking the seal at the distal valve.

30 The third embodiment device 30 comprises two rings, an internal ring 35 and an external ring 36. A taut valve 38 is applied at the distal end of the inner sleeve 32.

The fourth embodiment device 50 has a reduced outer sleeve 41 and flame 43. A reinforced taut valve 48 is provided at the distal end of the inner sleeve 42.

- 5 The fifth embodiment 50 has a reduced outer sleeve 51 and an internal ring 55. The taut valve 58 has struts inside the wings 59. The inner sleeve 52 has side welds which prevent inversion of the inner sleeve. The embodiment 60 has a larger outer sleeve 61, an internal ring 65 and a taut valve 68.
- 10 The embodiment 70 has an internal ring 75 and an external ring 76. In Figure 7a the cross section of the internal ring is 8 mm as opposed to 6 mm. The internal ring restricts movement of the taut valve 78 and therefore makes it much easier to pass the hand fully through the valve as far as the forearm.
- 15 The embodiment 80 has two rings 85 and 86 and flat weld drapes 83 and 84 as has the embodiment 90 with two rings 95 and 96. The external ring 96 is closer to the flange 97. The anchor rings 95, 96 give very good results with the internal ring taking up most of tenting force. The flexible outer sleeve 91 allows movement of the surgeon's arm without putting strain on any part of the device.
- 20 In the tenth embodiment 100, the length of inner sleeve 102 has been increased by 50 mm to allow the taut valve 108 to come up against the internal ring 105. Both of the rings 105 and 106 are made from polyurethane. On inflation of the device there is no gas loss and the tenting force acts on the internal ring. The outer sleeve 101 is very flexible but side welds prevent it from inverting at its proximal end. The inner 102 holds quite taut between its proximal end and the internal ring. A feather valve 103 is used to form a seal about a surgeon's arm.

- 30 The eleventh embodiment 110 is similar to embodiment 100 except the outer sleeve 111 is configured in a straight line. The sleeve 110 is shown in Figures 11 and 12. The external

ring when in position on a patient and the internal ring 115 downloads the force from the flange 113 and protects the taut valve from deflating.

Modifications to the taut valve 130 are shown in Figures 13 to 15a with the use of hinges
5 140 and 150.

It will of course be understood that the invention is not limited to the specific details
described herein, which are given by way of example only, and that various modifications
and alterations are possible within the scope of the invention as defined in the appended
10 claims.

MACLACHLAN & DONALDSON

Applicants' Agents

47 Merrion Square

DUBLIN 2

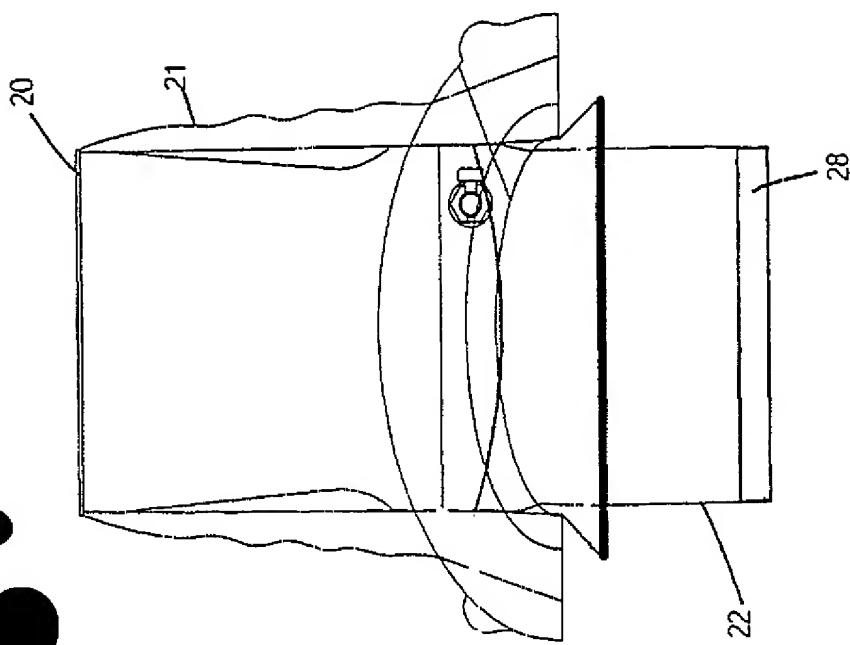


FIGURE 2

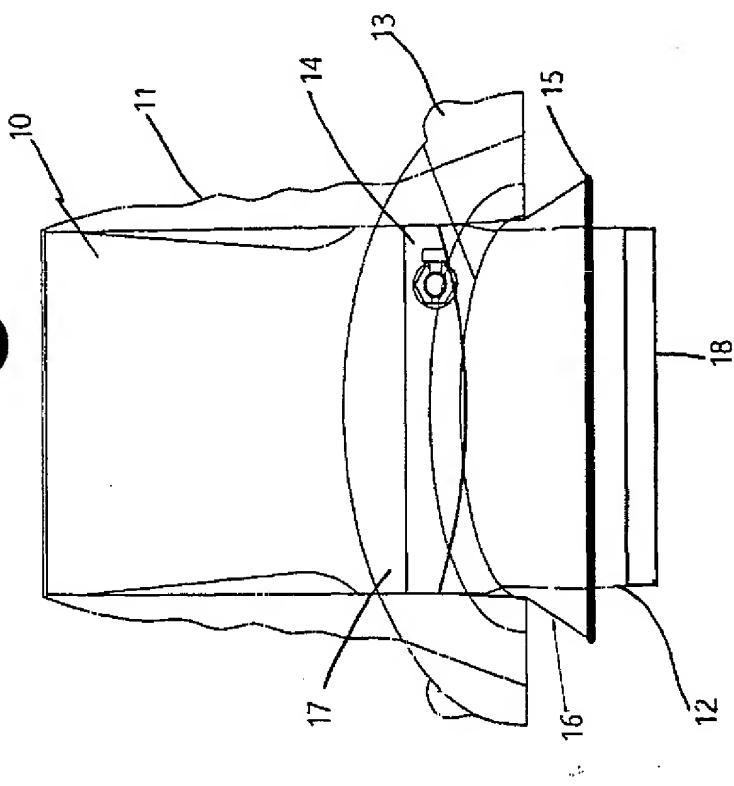


FIGURE 1

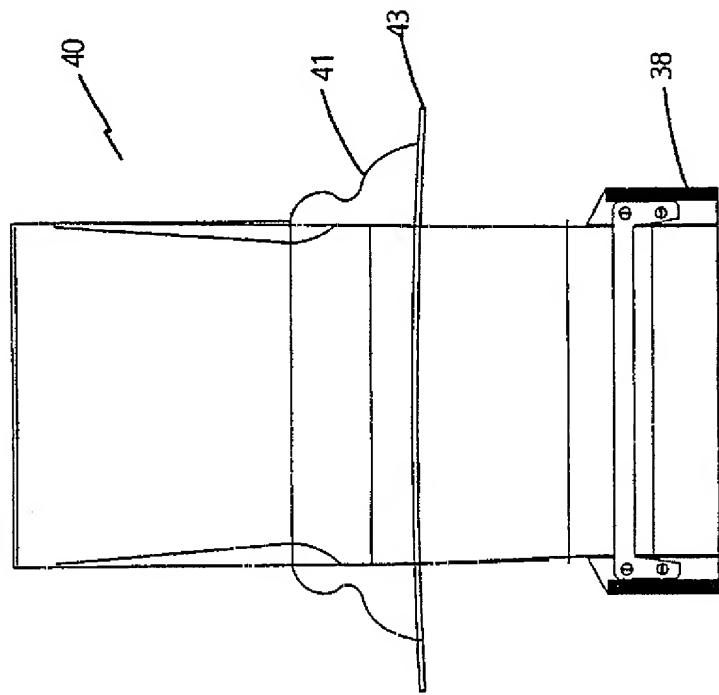


FIGURE 4

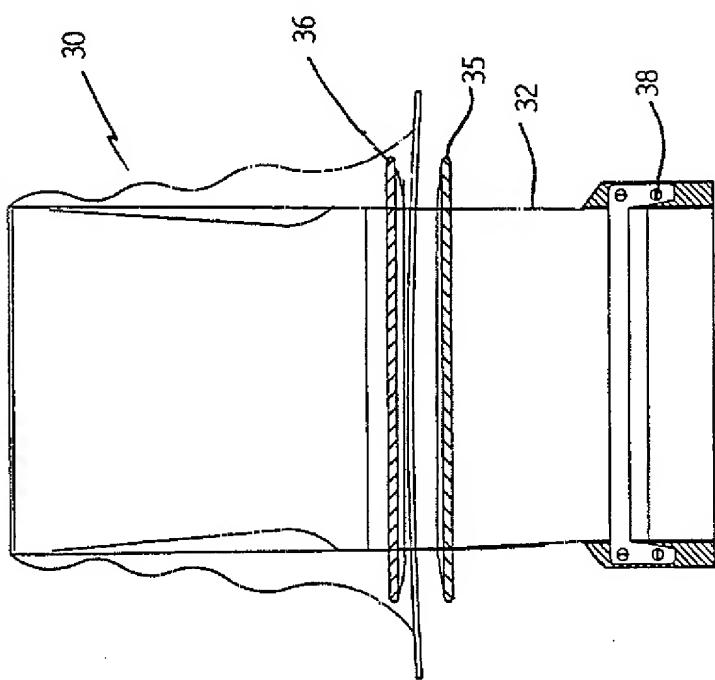


FIGURE 3

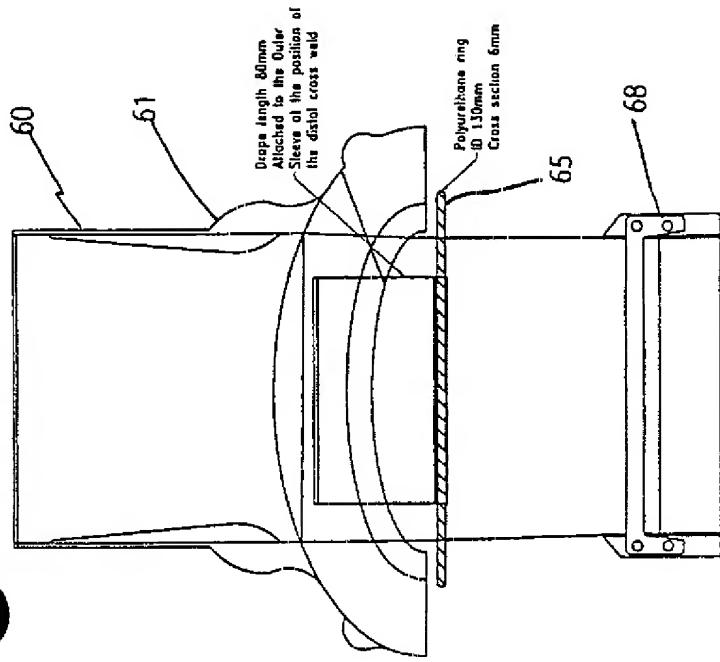


FIGURE 5

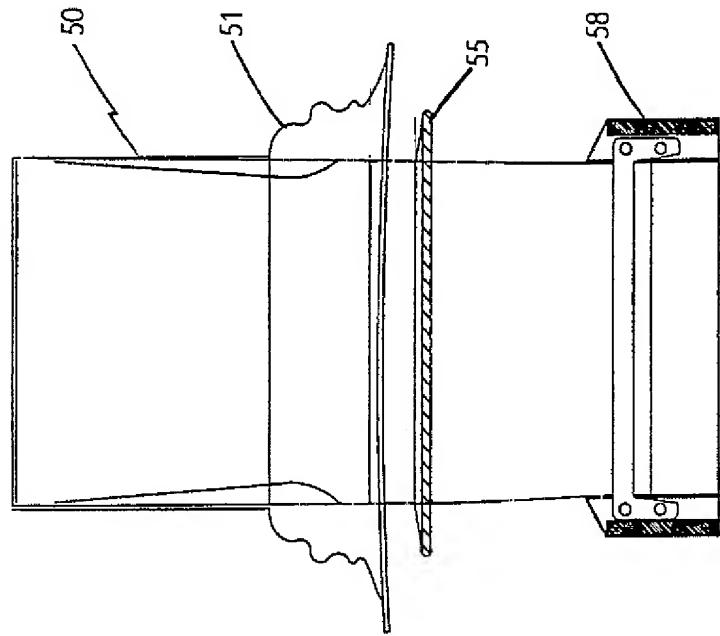


FIGURE 6

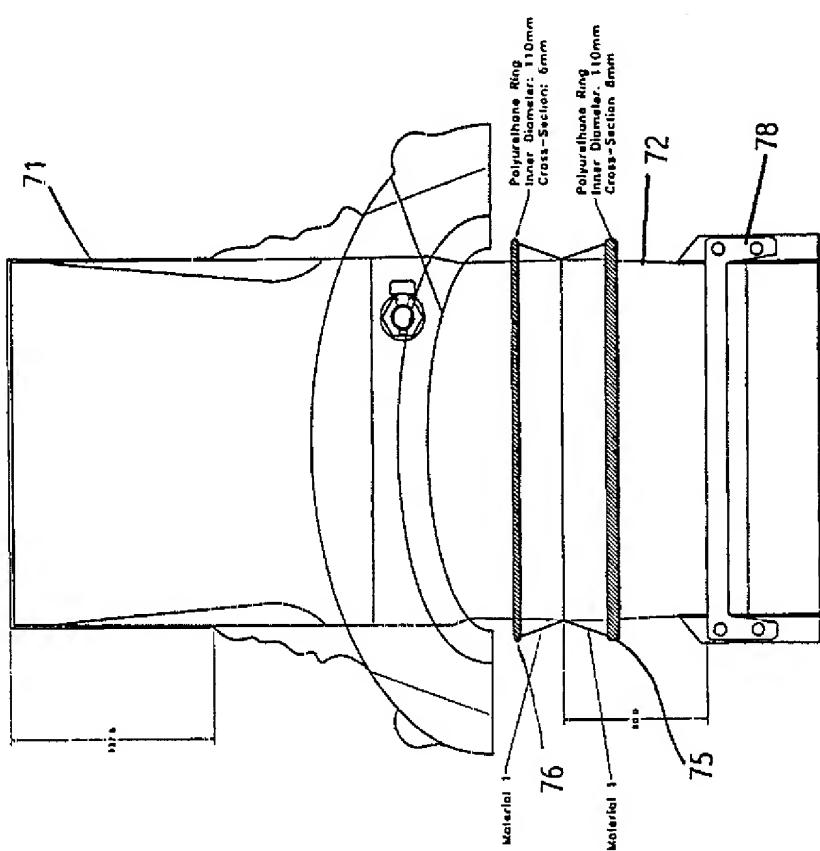


FIGURE 7a

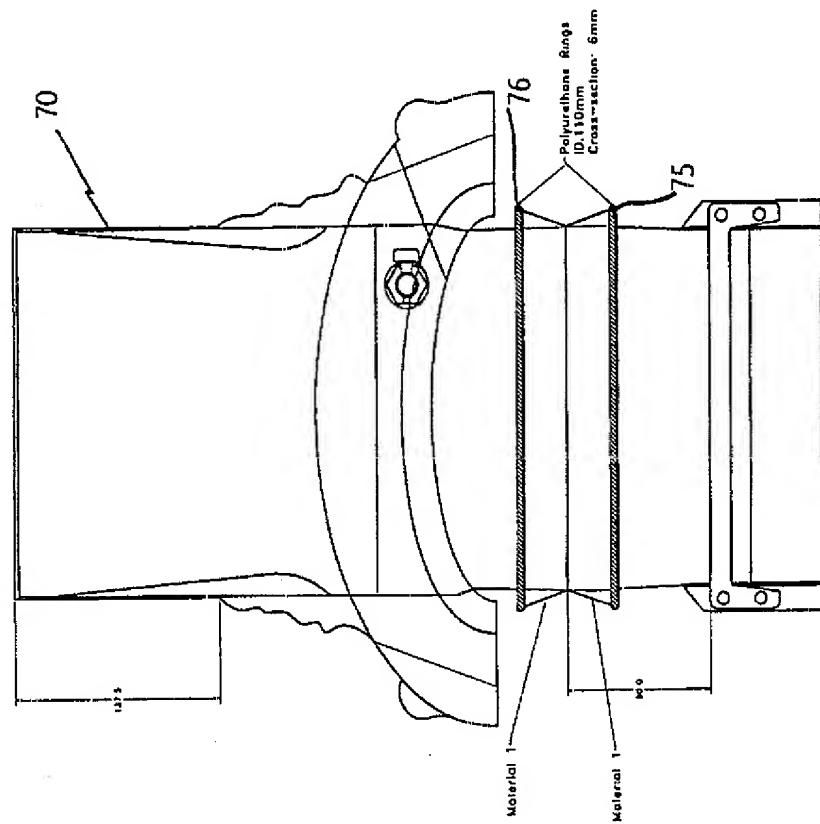


FIGURE 7

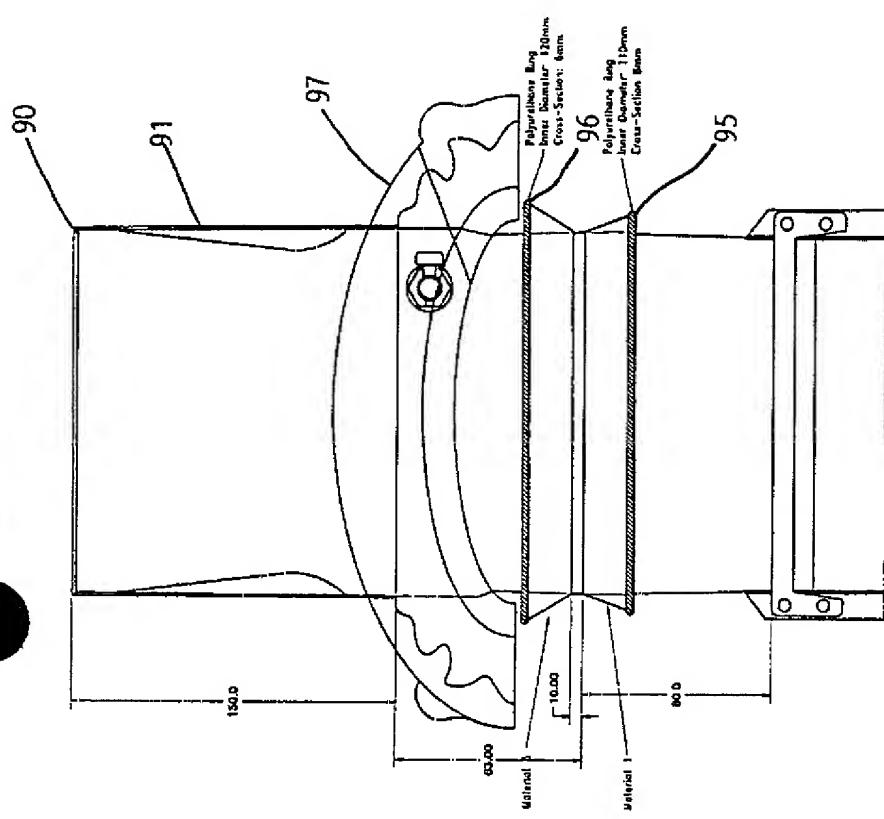


FIGURE 9

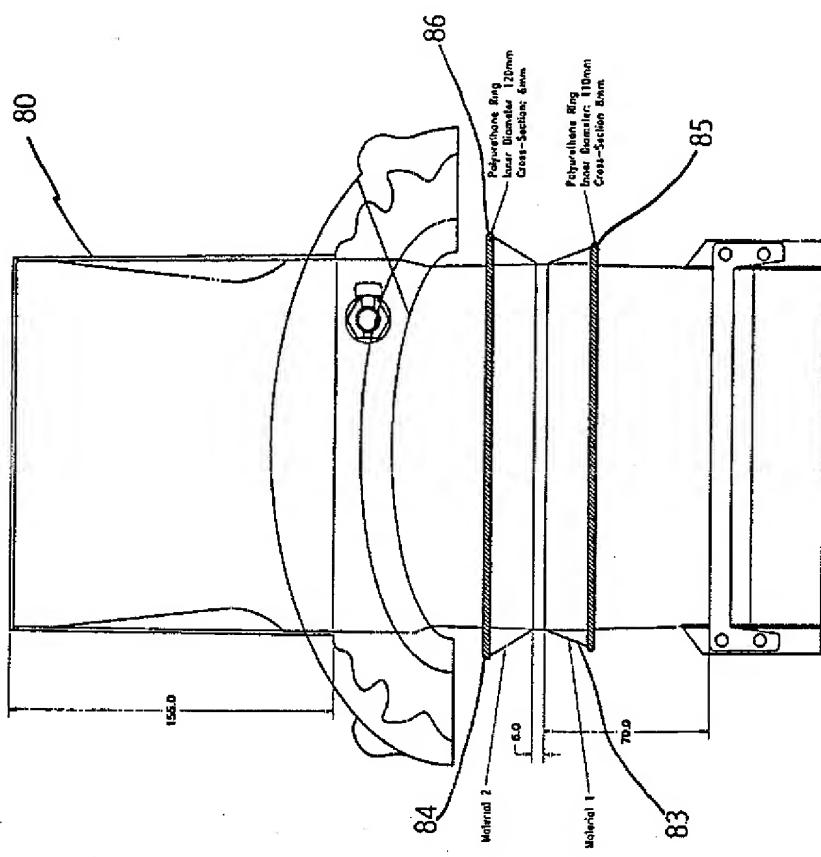


FIGURE 8

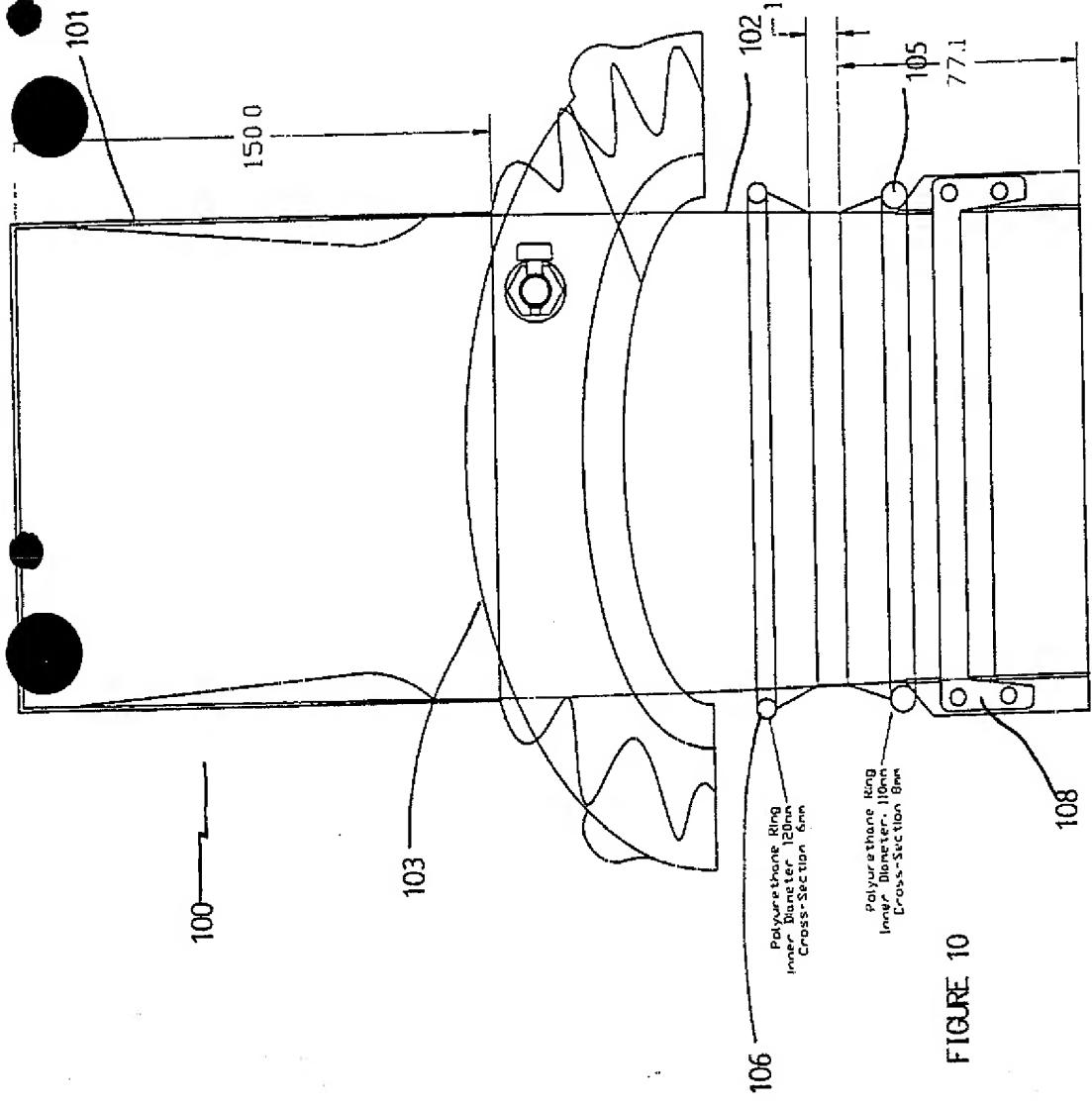


FIGURE 10

Polyurethane Rung
Inner Diaphragm Section Show

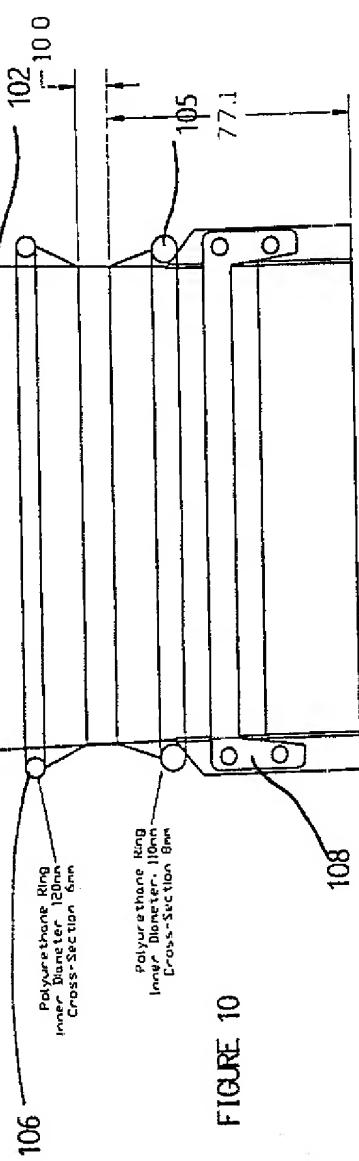
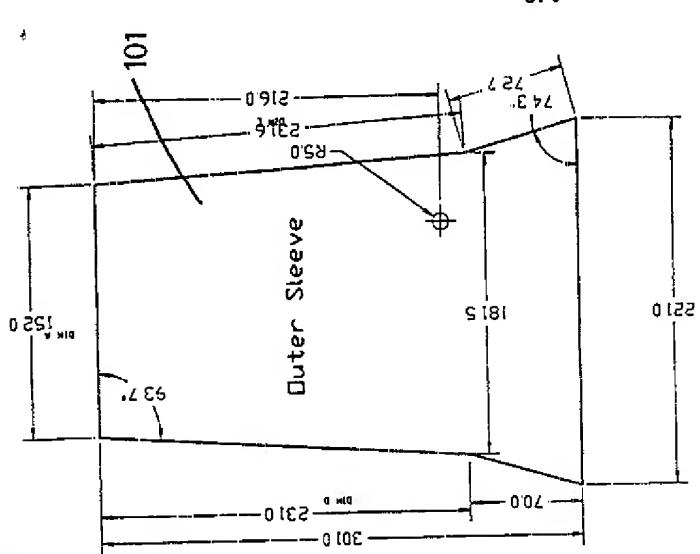
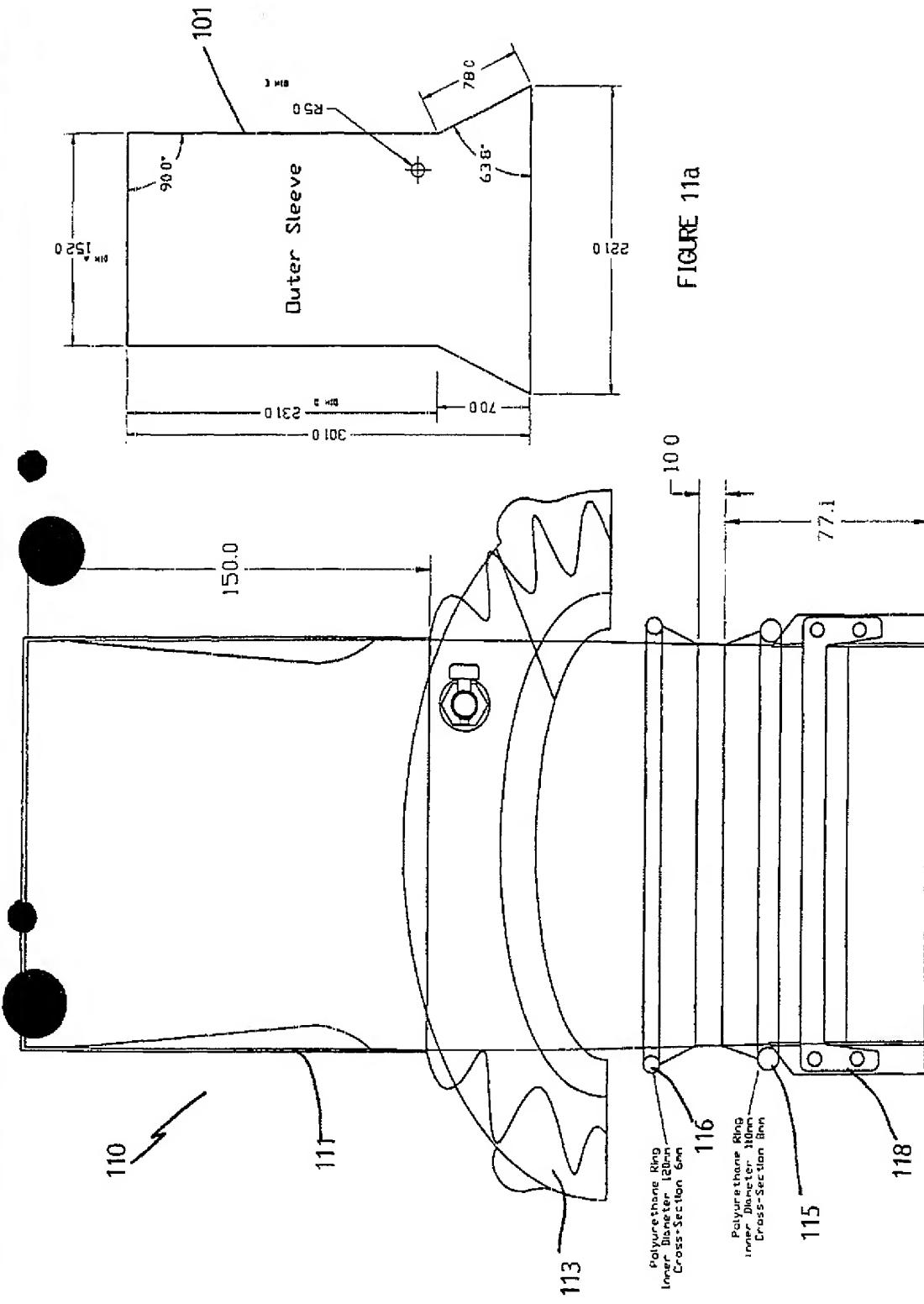


FIGURE 10a





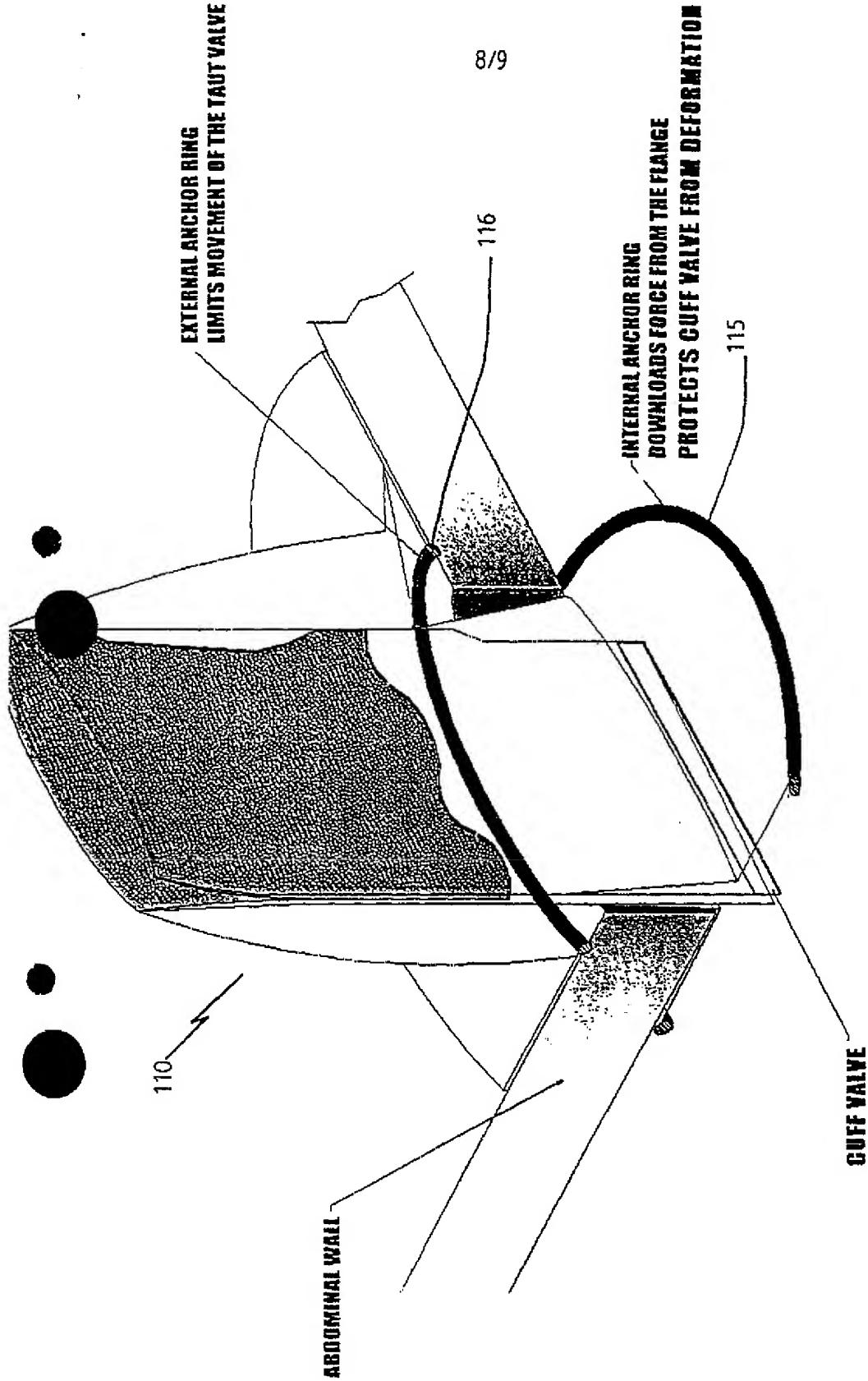


FIGURE 12

